AMENDMENTS TO THE CLAIMS

1. **(Currently Amended)** A structure comprising

(i) a first layer comprising a molecule-adsorbing, substantially non-ablatable material which is capable of thermal degradation under laser ablation conditions to provide a surface having diverse properties; and

(ii) a second layer comprising an ablatable material;

wherein the second layer is disposed on the first layer and wherein at least a portion of the second layer has been ablated to expose a surface of the first layer and form at least one profiled feature and wherein the exposed surface of the first layer has a plurality of different localized areas having different molecule-adsorbing capacities for molecules with different adsorbing properties.

2. **(Cancelled)**

3. **(Original)** The structure according to claim 1, wherein a plurality of portions of the second layer have been ablated to form a plurality of profiled features.

4. **(Original)** The structure according to claim 3, wherein the plurality of profiled features form an informationally-addressable pattern.

5. **(Original)** The structure according to claim 1, wherein the first layer is a polymeric material.

6. **(Cancelled)**

7. **(Currently Amended)** The structure according to claim 5 ~~6~~, wherein the exposed surface of the polymeric material has localized areas which are hydrophobic, hydrophilic, acidic, basic, charged or neutral.

8. **(Original)** The structure according to claim 1, wherein the first layer comprises a polymeric material selected from the group consisting of polyacrylates, polycarbonates, polystyrenes, fluorine-containing polymers, polyethylenes and derivatives thereof.

9. **(Original)** The structure according to claim 8, wherein the polymeric material is selected from the group consisting of polymethylmethacrylate (PMMA), polyacrylic acid, polyacrylonitrile, polymethacrylate, styrene-acrylonitrile copolymers, butadiene-styrene copolymers, polyalkylstyrenes and polytetrafluoroethylene.

10. **(Original)** The structure according to claim 9, wherein the polymeric material is polymethylmethacrylate.

11. **(Original)** The structure according to claim 7, wherein the localized areas form a predetermined pattern on the surface of the first layer.

12. **(Original)** The structure according to claim 1, wherein the second layer is a metal that can be deposited in a thin layer.

13. **(Original)** The structure according to claim 1, wherein the second layer is a metal selected from the group consisting of Au, Cr, Ag, Mg, Ti, V, Mn, Fe, Co, Ni, Cu, Zn, Cd, Pt, Pd, Rh, Ru, Mo, W and Pb.

14. **(Original)** The structure according to claim 13, wherein the metal is selected from the group consisting of Ag, Cr and Au.

15. **(Original)** The structure according to claim 1, further comprising a blocking layer disposed on the surface of the second layer.

16. **(Original)** The structure according to claim 15, wherein the blocking layer is a material selected from the group consisting of inert polymers, Self Assembled Monolayers, multilayer thin films and inert proteins.

17. **(Original)** The structure according to claim 1, further comprising a substrate that supports the first and second layers.

18. **(Original)** The structure according to claim 17, wherein the substrate is selected from the group consisting of quartz glass, mesoporous silica, nanoporous alumina, ceramic plates, glass, graphite and mica.

19. **(Original)** The structure according to claim 17, wherein the substrate is part of an apparatus for fabricating the structure or for performing the assay.

20. **(Original)** The structure according to claim 1, wherein the profiled feature is a micro-well or a micro-channel.

21. **(Currently amended)** The structure according to claim 20, wherein the micro-wells have a diameter in the range of ~~sub-microns~~ less than 1 micron to 50 μm.

22. **(Currently amended)** The structure according to claim 20, wherein the micro-channels have a width in the range of ~~sub-microns~~ less than 1 micron to 50 μm.

23. **(Original)** The structure according to claim 20, wherein the micro-channels have a width in the range of 5 to 200 μm.

Claims 24-38 (Cancelled)

39. **(Currently Amended)** An array comprising

(a) a micro-structure which comprises:

(i) a first layer comprising a molecule-adsorbing, substantially non-ablatable material which is capable of thermal degradation under laser ablation conditions to provide a surface having diverse properties; ~~[,]~~ and

(ii) a second layer of ablatable material;

wherein the second layer is disposed on the first layer and a plurality of portions of the second layer have been ablated to expose a surface of the first layer and thereby form a plurality of profiled features and wherein the exposed surface of the first layer has a plurality of different localized areas having different molecule-adsorbing capacities for molecules with different adsorbing properties; and

(b) at least one biomolecule adsorbed on the surface of the first layer in at least one of the plurality of profiled features.

40. **(Original)** The array according to claims 39, wherein each of the plurality of profiled features has the same biomolecule adsorbed on the surface of the first layer.

41. **(Original)** The array according to claim 39, wherein each of the plurality of profiled features has a different biomolecule adsorbed on the surface of the first layer.

42. **(Original)** The array according to claim 39, wherein the biomolecule is selected from the group consisting of a gene, DNA, RNA, an oligonucleotide, a protein, a peptide, a polysaccharide, a drug, an antibody, an antigen, an enzyme or an enzyme substrate.

Claims 43-54 (Cancelled)

55. **(New - Withdrawn)** A method of fabricating a structure according to claim 1, comprising the steps of:

(a) obtaining a substrate, said substrate supporting

(i) a first layer comprising a molecule-adsorbing, substantially non-ablatable material; and

(ii) a second layer comprising an ablatable material disposed on the first layer;

(b) laser ablating at least a portion of the second layer to expose a surface of the first layer to form at least one profiled feature.

56. **(New)** The method according to claim 24, wherein the first layer is applied to the substrate by sputter coating or spin coating.

57. **(New)** the method according to claim 25, wherein the first layer is applied to the substrate by spin coating.

58. **(New)** The method according to claim 24, wherein the second layer is applied to the first layer by sputter coating, spin coating or electroplating.

59. **(New)** The method according to claim 27, wherein the second layer is applied tot he first layer by sputter coating.

60. **(New)** The method according to claim 24, further comprising the step of applying a blocking layer to the surface of the second layer before laser ablation.

61. **(New)** The method according to claim 29, wherein the blocking layer is an inert polymer, Self Assembled Monolayer, a multilayer thin film or an inert protein.

62. **(New)** The method according to claim 30, wherein the inert polymer is applied by spin coating.

63. **(New)** The method according to claim 30, wherein the Self Assembled Monolayer is formed by immersion of the substrate supporting the first and second layers in a solution of the molecule that forms the Self Assembly Layer.

64. **(New)** The method according to claim 30, wherein the multilayer thin film is formed by the steps of:

(a) immersion of the substrate supporting the fist and second layers in a solution of first polyelectrolyte having a first charge; and

(b) immersion of the substrate obtained from (a) in a solution of second polyelectrolyte having a charge complementary to the first polyelectrolyte.

65. **(New)** The method according to claim 30, wherein the inert protein is applied by immersion and incubation of the substrate supporting the first and second layers in a solution of inert protein, by soaking in an inert protein solution, or by addition of a droplet of a protein solution to the surface of the second layer.

66. **(New)** The method according to claim 24, wherein the laser ablation is performed with a laser wavelength in the range of 100 nm to 1200 nm.

67. **(New)** The method according to claim 24, wherein the structure is fabricated on a fabrication platform consisting of a computer controlled laser ablation system comprising a

research grade inverted optical microscope, a pulsed nitrogen laser emitting a 337 nm and a programmable XYZ stage.

67. **(New)** The method according to claim 24, wherein the structure is fabricated on a fabrication platform consisting of a computer controlled laser ablation system comprising a research grade inverted optical microscope, a pulsed nitrogen laser emitting at 337nm and a programmable XYZ stage.

68. **(New)** The method according to claim 24, wherein in step (b) a plurality of portions of the second layer are laser ablated to form a plurality of profiled features.

69. **(New)** The method according to claim 24, wherein the plurality of profiled features are fabricated in an informationally-addressable pattern.

70. **(New)** A method of preparing an array according to claim 39, comprising:

(a) obtaining a structure according to claim 1; and

(b) contacting at least one profiled feature with a biomolecule.

71. **(New)** The method according to claim 43, wherein the biomolecule is selected from the group consisting of a gene, DNA, RNA, an oligonucleotide, a protein, a peptide, a polysaccharide, a drug, a potential drug, an antibody, an antigen, an enzyme, or an enzyme substrate.

72. **(New)** The method according to claim 43, wherein the biomolecule is contacted with each of the profiled features by flooding the arrays with a solution containing the biomolecule.

73. **(New)** The method according to claim 43, wherein the biomolecule is deposited in each of the profiled features using a pico-litre pipette.

74. **(New)** An assay method comprising the steps of:

(i) contacting an array according to claim 39 with a test sample that can contain an analyte that interacts with the at least one biomolecule adsorbed on the surface of the first layer within at least one profiled feature;

(ii) detecting binding of the analyte to the adsorbed biomolecule.

75. **(New)** The assay method according to claim 47, wherein the biomolecule and the analyte, in any order, are selected from the group of complementary recognition components consisting of protein and protein, protein and DNA, RNA or oligonucleotide, protein and oligosaccharide or polysaccharide, protein and drug, enzyme and substrate, enzyme and inhibitor,

drug and receptor, DNA, RNA or oligonucleotide and their complementary strand, antibody and antigen, DNA, RNA or oligonucleotide and drug, DNA, RNA or oligonucleotide and oligosaccharide or polysaccharide.

76. **(New)** The assay method according to claim 47, wherein the binding of the analyte and the adsorbed biomolecule is detected by use of fluorescent, phosphorescent, luminescent or radioactive markers or the use of nanoparticles or magnetic beads.

77. **(New)** The assay method according to claim 47, which is a diagnostic assay method.

78. **(New)** The assay method according to claim 47, which is a high throughput screening assay method.

79. **(New)** The assay method according to claim 47, wherein the plurality of profiled features in the array form an informationally-addressable pattern.

80. **(New)** The assay method according to claim 52, wherein the informationally-addressable pattern encodes information about the biomolecule adsorbed on the exposed surface of the first layer in the plurality of profiled features forming the informationally-addressable pattern.

81. **(New)** The assay method according to claim 52, wherein the informationally-addressable pattern encodes information about the analyte contacted with the biomolecule adsorbed on the exposed surface of the first layer in the plurality of profiled features forming the informationally-addressable pattern.